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RESPONSE UNDER 37 C.F.R. § 1.116
EXPEDITED PROCEDURE
GROUP 1711
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Toshikatsu FURUNAGA, et al.

Docket No: Q62004

Appln. No.: 09/725,040

Group Art Unit: 1711

Confirmation No.: 8611

Examiner: U. Rajguru

Filed: November 29, 2000

For: SIZING AGENT AND RECORDING PAPER COMPRISING SIZING AGENT

RESPONSE TO FINAL REJECTION

MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Please consider the following Applicants' response to the outstanding rejection of February 25, 2004 three times extended to August 25, 2004.

The pending claims: claims 20, 22-27, 29 and 31-34 are pending.

All pending claims are rejected.

The prior art: U.S. 4,908,240 Auhorn et al (Auhorn); U.S. 6,171,381 Yoshimura et al (Yoshimura); JP 11279203 (JP '203).

The art rejections:

Claims 20, 24-27, 29 and 31-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Auhorn.

Claims 22-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Auhorn further in view of Yoshimura and JP '203.

The above rejections are respectfully traversed.

Applicants first address the rejection of claim 20 under 35 U.S.C. § 112, first paragraph, the Examiner essentially urging that there is no support in the specification at page 3, lines 8-14 for "consisting essentially of".

This rejection is respectfully traversed.

"Consisting essentially of" is a limitation on the sizing agent.

At page 3, lines 9-11, the specification states:

"This recording paper can be produced by coating or impregnating a raw paper with the sizing agent comprising at least a water-soluble soybean polysaccharide."

At page 3, lines 12-14, the following disclosure occurs:

"In the present invention, the inclusion of a cationic polymer and the sizing agent is preferable to further improve the fixing and color development of ink."

Finally, the Examples given in Table 1 illustrate the components which constitute the sizing agent of the present invention, such as an alumina and a surfactant in addition to a water-soluble soybean polysaccharide and a cationic polymer. See pages 14-15 of the specification and Table 1 at page 14 of the specification.

The language "consisting essentially of" in claim 20 simply means that the "sizing agent" of the present invention should not contain any components which would adversely effect the "sizing" effects thereof.

While the language "consisting essentially of" is not used in the specification, quite clearly "consisting essentially of in the context of the present application claiming a sizing agent is proper.

The Examiner is respectfully submitted to be clearly in error in the rejection of claim 20 under 35 U.S.C. § 112, first paragraph, and withdrawal is requested.

Applicants now present their traversal of the art rejections.

TRAVERSAL

Claim 20 of the present application calls for:

20. (currently amended): A method for sizing a paper with a sizing agent which comprises coating or impregnating a raw paper with a sizing agent consisting essentially of a water-soluble soybean polysaccharide and a cationic polymer.

Quite clearly a distinguishing feature of the present invention lies in the use of a sizing agent consisting essentially of a water-soluble soybean polysaccharide and a cationic polymer. This is emphasized in the specification at page 3, lines 9-14, page 12, lines 11-14 and page 12, lines 23-28.

Contrasted to the present invention, Auhorn simply discloses a process for improving the printability of paper by applying an aqueous coating agent consisting of pigments and binders to one or both surfaces of an Auhorn paper, and drying the coated paper. The aqueous coating agent of Auhorn is described as follows at Auhorn, col. 1, lines 65 to col. 2, line 12:

(a) 100 parts by weight of a finely divided pigment,
(b) from 5 to 70 parts by weight, based on polymer, of a cationic aqueous polymer dispersion of a paper size, whose polymer has a glass transition temperature of 5° to 80°C, and
(c) from 0.01 to 10 parts by weight of a surfactant which interferes with the formation of the surface size and/or of a polymeric dispersant is used in an amount of 4 g/m^2.

Auhorn also discloses that up to 90%, preferably 5 to 30%, by weight of polymer component (b) can be replaced by a water-soluble polysaccharide. See Auhorn at col. 2, lines 12-14. Further, **and importantly**, and even though component (b) in Auhorn is a typical cationic surface size for paper, **the sizing action of the size is virtually completely eliminated**, yet, according to Auhorn, the printability of the paper thus treated is substantially improved. See Auhorn at col. 2, lines 16-18.

Auhorn thus clearly and specifically teaches to one of ordinary skill in the art that polymer component (b), even if the same includes a water-soluble polysaccharide, **does not act as a sizing agent**.

Auhorn thus teaches against the present invention and cannot, it is respectfully submitted, support an obviousness rejection.

Although Auhorn teaches that cationic polymer dispersions of this type are known, and, when applied alone to the surface of a paper size, size the paper (col. 2, lines 46-50), and that up to 90%, preferably 5 to 30%, by weight of polymer component (b) can be replaced by a water-soluble polysaccharide, every bit as clearly Auhorn teaches that suitable components (c) of the coating agents of Auhorn comprise surfactants and/or polymeric dispersants which improve the

wettability of the paper with water but which **also interfere or prevent surface sizing by the surface size (b)**. See Auhorn at col. 7, lines 30-34.

The "consisting essentially of" language herein avoids Auhorn since Auhorn components interfere with the sizing agent, and thus are excluded from the claims herein.

Further, although Auhorn teaches that suitable polysaccharides are water-soluble starches, carboxymethylcellulose, methylcellulose, hydroxymethylcellulose and galacomannanes (col. 7, lines 26-29), Auhorn fails to reach or suggest the use of a sizing agent involving water-soluble soybean polysaccharide extracted from soybean or soybean extraction residue which is subjected to desalinating purification.

Thus, Auhorn does not teach or suggest the use of water-soluble soybean polysaccharides, a critical defect to the obviousness rejection.

The Examiner is submitted to be in clear error in rejecting claim 20 and the claims which depend on claim 20 which are rejected over Auhorn and Applicants respectfully request withdrawal of the rejection.

Applicants now address the rejection of claims 22 and 23 over Auhorn further in view of Yoshimura and JP '203.

Claims 22 and 23 are short, and read as follows:

22. (previously presented): The method according to claim 20, wherein said cationic polymer is fixed to said water-soluble soybean polysaccharide.

23. (previously presented): The method according to claim 20, wherein said cationic polymer is graft-polymerized to said water-soluble soybean polysaccharide.

Since Auhorn does not disclose or suggest a sizing agent which can involve the use of a water-soluble soybean polysaccharide, obviously Auhorn, even in combination with other prior art, cannot properly be used to reject claims 22 and 23. However, additional reasons militate against this rejection, as now discussed by Applicants.

Yoshimura discloses an aqueous metallic ink composition comprising at least a metallic powder pigment, a colorant, water and water-soluble organic solvent, further including both a natural polysaccharide and a water-soluble soy polysaccharide or water-soluble polysaccharide derivatives. Yoshimura teaches that the stability with time of the density of the color development is increased, and any change in viscosity of the Yoshimura ink after storage is restrained or prevented (Yoshimura, col. 3, lines 48-61).

Specifically, in Yoshimura a water-soluble soy polysaccharide or water-soluble soy polysaccharide derivatives is/are used in place of cellulose derivatives (such as methyl cellulose, CMC, etc.) or a cyclodextrin/cyclodextrin derivative, both having hydroxyl groups, together with a natural polysaccharide (Yoshimura, col. 2, line 64 to col. 3, line 11, col. 3, line 46 to col. 4, line 19, col. 5, lines 40-54, and col. 6, lines 15-34.

However, a careful review of Yoshimura establishes that an indispensable or mandatory component in Yoshimura for controlling color development in the aqueous metallic ink composition of Yoshimura is not a water-soluble soy polysaccharide or a water-soluble soy polysaccharide derivative, rather, **the mandatory component in Yoshimura is a natural polysaccharide**. This, of course, means that the water-soluble soy polysaccharide or water-soluble soy polysaccharide derivatives of Yoshimura cannot be used alone but must be used

together with the Yoshimura natural polysaccharide. The Yoshimura natural polysaccharide is selected from the group consisting of a microbial polysaccharide or a derivative thereof, a water-soluble vegetable polysaccharide or a derivative thereof, or a water-soluble animal polysaccharide or a derivative thereof. See Yoshimura at col. 4, lines 59-63.

From the Action of June 2, 2003, the Examiner states:

"Yoshimura is relied upon for its disclosure of the use of soy polysaccharide or soy polysaccharide derivative in a coating composition such as a ink composition" (see col. 3, lines 46-61).

The above statement occurs at the top of page 4 of that Action.

If this is the teaching that the Examiner is relying upon in Yoshimura, Applicants respectfully submit that Yoshimura in no fashion strengthens any rejection based on Auhorn, since Yoshimura, which does not teach or suggest the use of a sizing agent involving a water-soluble soybean polysaccharide in a cationic polymer, would in no fashion motivate one of ordinary skill in the art to reach the subject matter of claims 22 or 23 (where the cationic polymer is fixed or graft-polymerized to the water-soluble soybean polysaccharide).

Simply stated, there is nothing of record which would motivate one of ordinary skill in the art to modify Auhorn in view of Yoshimura to obtain **a sizing agent** where a cationic polymer is fixed to or graft polymerized to a water-soluble soybean polysaccharide.

With respect to JP '203, JP '203 discloses a method for producing a water-soluble soybean polysaccharide using desalinating purification of the water-soluble polysaccharide extracted from a soybean or a treated soybean material in an acidic range. JP '203 is silent regarding application for coating or sizing use (see attached English abstract of JP '203).

Considering the disclosure in JP '203, Applicants respectfully submit that there would be no motivation for one of ordinary skill in the art to take the teaching in JP '203 regarding desalination and take that procedure and apply it to a water-soluble soybean polysaccharide with any reasonable expectation that such a treatment would have any effect or improvement on sizing results.

Without such motivation with some expectation or benefit regarding sizing results, Applicants respectfully submit that there would be no reason for one of ordinary skill in the art to take this procedure and apply it to a sizing agent other than, of course, reading the present specification and taking an "obvious to try" approach. Why would one of ordinary skill in the art use this complicated procedure of making a water-soluble soy polysaccharide for use in a sizing agent based on disclosure (JP '203, Abstract) that one can simply expand the stable pH range of an acidic milky beverage? The answer, of course, is that there is no reason that one of ordinary skill in the art would take the teaching in JP '203 and use that teaching to modify Auhorn. In the real world of one of ordinary skill in the art, there must be some reason (motivation) to take an extra complicating procedure (JP '203) and use that procedure to modify another procedure from a different art (Auhorn). Here there simply is no reason to make the combination the Examiner has presented.

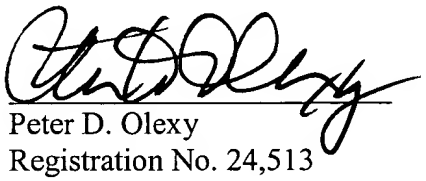
Withdrawal of all rejections is requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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(54) WATER SOLUBLE SOYBEAN POLYSACCHARIDE, AND ITS PRODUCTION AND USE THEREOF

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain water soluble soybean polysaccharides by using soybean or a treated soybean material as a raw material, capable of freely adjusting the viscosity and gel strength of the solution thereof and also expanding the stable pH range of an acidic milky beverage.

SOLUTION: This method for producing water soluble soybean polysaccharides is characterized in that the water soluble polysaccharides obtained by extracting soybean or a treated soybean material, is treated for desalting and purifying in an acidic range, and a use of the water soluble soybean polysaccharides in which water the soluble soybean polysaccharides are made to contain ≤3 wt.% ash component in solid portion thereof by treating the water soluble polysaccharides with desalting and purifying in an acidic range, and the solution is thickened or gelled by coexisting the water soluble soybean polysaccharides or neutralized materials thereof by an alkali hydroxide with a polyvalent cation in an aqueous solution.